

Reconstruction of Roman road networks

Christian Beck | Germany

In recent decades, the study of roman roads has been given new impetus by the development and availability of new technologies such as drone imagery including multispectral and thermal imaging, satellite imagery, digital terrain models and LIDAR scans. These have helped to identify unknown streets and provide new insights into road networks and trade routes.

In general, the identification of ancient roads requires the combination of a number of historical sources like old maps, archival documents or pictorial representations and archaeological remains excavated or known from geophysical surveys and aerial photographs. A reason for this is the varying nature of the roads. Apart from paved streets known from the Via Appia or from the Vesuvian cities, gravel roads or plank roads (bogs) can also be expected. For the reconstruction of Roman roads, Grabherr (2006) or Kastler (2010) followed this approach.

Methodologically, the approach of the ERC STRADA is based on proven methods for researching ancient road systems, which are, however, extended by new technological approaches. An important contribution is made by the evaluation of aerial photographs, which has been used successfully since the end of the last millennium (Grabherr, 2006, p. 60). Comparatively new is also the evaluation of LIDAR scans and digital terrain models, which also make it possible to detect hidden structures. Unlike aerial photographs, they are also suitable for making further statements in mountainous and forested regions (Grabherr, 2006, p. 60. Highlight's the problems with the evaluation of aerial photographs in forests and mountains).

The evaluation of the existing data is supplemented by aerial flights with different drones. In addition to normal camera drones, multispectral and thermal drones are used to create new images, to examine anomalies from aerial photographs, or to trace structures that were visible in DEMs. In the post-processing phase, aerial surveys also enable the creation of orthomosaics and 3D models that can be georeferenced and measured. The results acquired in this way are supplemented by field research campaigns, in which neuralgic points are investigated on site.

The proposed presentation will show first reconstruction results of Roman roads in the STRADA project. Besides a case study, results of flights with multispectral and thermal drones are presented.

References

Grabherr, G (2006). Die Via Claudia Augusta in Nordtirol – Methode, Verlauf, Funde, IKARUS 1. Innsbruck: Innsbruck university press, pp. 36 – 336.

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